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ORIGINAL

PATENT APPLICATION

ATTORNEY DOCKET NO. 2003018991

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Andreas H. KUEHNEL

Confirmation No.: 8938

Application No.: 09/929,147

Examiner: C. T. Truong

Filing Date: 08/14/2001

Group Art Unit: 2162

Title: METHOD AND APPARATUS FOR MANAGING LARGE NUMBERS OF OBJECTS HAVING THE SAME PROPERTY

Mail Stop Appeal Brief-Patents
Commissioner For Patents
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Alexandria, VA 22313-1450

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TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on 03/23/2005.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

( ) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

( )	one month	$120.00
( )	two months	$450.00
( )	three months	$1020.00
( )	four months	$1590.00

( ) The extension fee has already been filled in this application.

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(X) (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account **08-2025** the sum of **$500.00**. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

( ) I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450. Date of Deposit:_____

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(X) I hereby certify that this paper is being transmitted to the Patent and Trademark Office facsimile number (703) 872-9306 on 05/23/2005

Number of pages: 37

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Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	Andreas H. KUEHNEL	§	Confirmation No.:	8938
Serial No.:	09/929,147	§	Group Art Unit:	2162
Filed:	08/14/2001	§	Examiner:	C. T. Truong
For:	Method And Apparatus For Managing Large Numbers Of Objects Having The Same Property	§	Docket No.:	200301899-1

APPEAL BRIEF

Mail Stop Appeal Brief – Patents
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Alexandria, VA 22313-1450

Date: May 23, 2004

Sir:

Appellant hereby submits this Appeal Brief in connection with the above-identified application. A Notice of Appeal was filed via facsimile on March 23, 2005.

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Appl. No. 09/929,147
Appeal Brief dated May 23, 2005
Reply to final Office Action of January 26, 2005

I. REAL PARTY IN INTEREST

The real party in interest is the Hewlett-Packard Development Company (HPDC), a Texas Limited Partnership, having its principal place of business in Houston, Texas, through its merger with Compaq Computer Corporation (CCC) which owned Compaq Information Technologies Group, L.P. (CITG). The Assignment from the inventor to CCC was recorded on August 14, 2001, at Reel/Frame 012085/0869. The Assignment from CCC to CITG and the Change of Name document were faxed to the U.S. Patent and Trademark Office on May 12, 2005. The recordation date and reel/frame numbers have not yet been received.

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II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals or interferences.

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III. STATUS OF THE CLAIMS

Originally filed claims:	1-56.
Claim cancellations:	18, 25, 32, 39, 46 and 53.
Added claims:	None.
Presently pending claims:	1-17, 19-24, 26-31, 33-38, 40-45, 47-52 and 54-57.
Presently appealed claims:	1-8, 10-13, 15-17, 19, 20, 22-24, 26, 27, 29--31, 33, 34, 36-38, 40, 41, 43-45, 47, 48, 50-52, 54, 55, and 57.

The Examiner concluded dependent claims 9, 14, 21, 28, 35, 42, 49, and 56 contained allowable subject matter and thus those claims are not being appealed.

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IV. STATUS OF THE AMENDMENTS

No claims were amended after the final Office Action dated January 26, 2005.

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V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The summary is set forth in the following exemplary embodiments that correspond to claims involved in the appeal. Discussions about elements and recitations of these claims can be found at least at the cited locations in the specification and drawings.

Appellant discloses an apparatus for use in managing objects. Computing device 100, Figure 1. An embodiment of the disclosed apparatus comprises a plurality of clusters, a first data structure, a second data structure, and a counter. Each cluster comprises a plurality of objects. The first data structure indicates a state of the objects and the second data structure indicates the state of the clusters. The counter is indicative of a number of sets of adjacent bits that are set in words of the second data structure. A second data structure bit that is set indicates that one or more clusters of objects associated with that bit are free for storage of data. Figures 3 and 4; pages 11-17.

Appellant discloses another embodiment of an apparatus that comprises a plurality of files and a plurality of clusters populating each file. Each cluster comprises a plurality of slots. Also included is an allocation bitmap indicating a state of the slots, a directory bitmap indicating the state of the clusters and a usage counter. The usage counter is indicative of a number of sets of adjacent bits that are set in words of the directory bitmap. A bit in the directory bitmap that is set indicates whether a cluster associated with that bit is free. Figures 3 and 4; pages 11-17.

In yet another embodiment, a method for managing a plurality of clustered objects comprises tracking a state for each of a plurality of objects in a first data structure, tracking states of clusters of objects in a second data structure, consulting at least one of the first and second data structures to manage the objects and consulting at least one usage counter to manage the objects. The at least one usage counter indicates how many sets of adjacent bits are set in words of the second data structure. Each bit in the second data structure that is set indicates whether a cluster of objects associated with that bit is free. Figures 3 and 4; pages 11-17.

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In yet another embodiment, a program storage medium is encoded with instructions that, when executed by a computing device, perform a method for managing a plurality of clustered objects in a container. The method comprises tracking a state for each of a plurality of objects populating a container in a first data structure, tracking states of clusters of objects in a second data structure, consulting at least one of the first and second data structures to manage the objects, and consulting at least one usage counter. The at least one usage counter indicates how many sets of adjacent bits are set in words of the second data structure to indicate that associated objects are free for storing data. Figures 3 and 4; pages 11-17.

In yet another embodiment, a computing device is programmed to perform a method for managing a plurality of clustered objects in a container. The method comprises tracking a state for each of a plurality of objects populating a container in a first data structure, tracking states of clusters of objects in a second data structure, consulting at least one of the first and second data structures to manage the objects, and consulting at least one usage counter. The at least one usage counter indicates how many sets of adjacent bits are set in words of the second data structure. A bit that is set in the second data structure indicates that an associated cluster of objects is free for storing data. The words each have a wordlength based on a maximum number of bits handled by a processor that executes an operating system. Figures 3 and 4; pages 11-17.

In yet another embodiment, a method is disclosed for managing a plurality of clustered slots in a file. The method comprises tracking a state for each of a plurality of slots populating a file in a allocation data structure tracking states of clusters of objects in a directory data structure, consulting at least one of the allocation and directory data structures to manage the slots, and consulting at least one usage counter. The at least one usage counter indicates how many sets of adjacent binary bits are set in words of the directory structure thereby indicating which clusters of objects are free for storing data. Figures 3 and 4; pages 11-17.

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In yet another embodiment, a program storage medium is encoded with instructions that, when executed by a computing device, perform a method for managing a plurality of clustered slots in a file. The method comprises tracking a state for each of a plurality of slots populating a file in a allocation data structure, tracking states of clusters of objects in a directory data structure, consulting at least one of the allocation and directory data structures to manage the slots, and consulting at least one usage counter that indicates how many adjacent clusters are available storing data. Figures 3 and 4; pages 11-17.

In another embodiment, a computing device is programmed to perform a method for managing a plurality of clustered slots in a file. The method comprises tracking a state for each of a plurality of slots populating a file in a allocation data structure, tracking states of clusters of objects in a directory data structure, consulting at least one of the first and directory data structures to manage the slots and consulting at least one usage counter. The at least one usage counter indicates how many sets of adjacent bits are set in words of the directory data structure thereby indicating which clusters are free for storing data. Figures 3 and 4; pages 11-17.

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VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 3, 5, 7, 10, 15-17, 20, 22-24, 27, 29-31, 34, 36-38, 41, 50-52, and 55[1] are rejected under 35 U.S.C. § 103 as obvious over Macon (U.S. Pat. No. 5,715,455) in view of Burrows (U.S. Pat. No. 5,966,703) and Shoroff (U.S. Pat. No. 6,023,744).

Whether claims 2, 4, and 11 are rejected under 35 U.S.C. § 103 as obvious over Macon in view of Burrows, Shoroff, and Lehman (U.S. Pat. No. 5,732,402).

Whether claims 6 and 12 are rejected under 35 U.S.C. § 103 as obvious over Macon in view of Burrows, Shoroff, and Yamagami (U.S. Pat. No. 6,256,282).

Whether claims 8, 13, 19, 26, 33, 40, and 54 are rejected under 35 U.S.C. § 103 as obvious over Macon in view of Burrows, Shoroff, Zwilling, and Orcutt (U.S. Pat. No. 6,377,958).

Whether claims 43-45 and 48 are rejected under 35 U.S.C. § 103 as obvious over Macon in view of Millett and Orcutt.

[1] The Examiner referred to claim 48 on page 23 of the final Office Action, but did not list claim 48 in the listing of claims rejected under the combination of Macon, Burrows and Shoroff on page 2. The Examiner clearly did include claim 48 in the rejection under Macon in view of Millett and Orcutt on pages 31 and 36 of the Office Action. Thus, Appellant believes that claim 48 is only being rejected as obvious over the combination of Macon, Millett, and Orcutt.

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VII. ARGUMENT

A. Claims 1-8 and 57.

Appellant argues independent claim 1 as representative of this claim group. Claim 1 requires, among other limitations, "a counter indicative of a number of sets of adjacent bits that are set in words of the second data structure, wherein a second data structure bit that is set indicates that one or more clusters of objects associated with said bit are free for storage of data." The claimed counter thus keeps track of the number of sets of adjacent bits that are set in the second data structure, in which a set bit in the second data structure indicates that one or more clusters of objects associated with that bit is free for storage. The Examiner correctly concluded that Macon does not teach or suggest the claimed "counter," and, instead, seems to turn to the combination of Burrows and Shoroff for that teaching. Appellant believes the Examiner's analysis is in error for several reasons.

Burrows is directed to a technique for parsing web pages to facilitate searching the content of the web pages. Each word in a web page is parsed and indexed by its location within the page. See e.g., Abstract. The Examiner seems to argue that the size 253 field in Figure 4 is akin to the claimed counter. Size field 253, however, is described as providing the size (measure in units of bytes) of the web page. See col. 8, lines 47-50. The size field 253 is not described as being a counter. Further, Burrows appears to be completely devoid of any mention whatsoever of a counter as recited in claim 1.

The Examiner attempts to support his position that Burrows' size field is somehow a counter in stating that the "size field 253 is represented as a counter indicative [sic] (col. 8, lines 47-50, fig. 6)." Office Action page 3. Col. 8, lines 47-50 simply state that the size field 253 "can be expressed as the number of bytes of a page. The size information can help a user determine the amount of bandwidth needed to "download" the page, and the amount of memory needed to store the page." Figure 6 in Burrows does not show a counter. The text pertaining to Figure 6 has no mention whatsoever of a counter as claimed. See

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col. 10, lines 18-54. Thus, none of these passages, nor anywhere else in Burrows, teaches or even suggests the claimed counter.

With regard to Burrows, the Examiner also states that a "byte contains words." Office Action page 3. Appellant submits that the Examiner's definition of the word "byte" is at odds with the definition that one of ordinary skill in the art would attribute to "byte." Typically, words are thought of as comprising bytes, not vice versa. To the extent the Examiner's rejection is based on the erroneous understanding of the word "byte," Appellant contends that the Examiner's rejection is in error. The Examiner has used this erroneous definition of "bytes" throughout the Office Action in rejecting numerous other claims as well.

The Examiner also refers to Shoroff's teaching of a bitmap record 52 in Figure 2 and in col. 5, lines 7-10. Office Action page 3. Shoroff explains that the bitmap record 52 has "a bit for each cluster on the volume, with each bit having a value representative of whether a cluster is allocated to a file or is free space." Col. 5, lines 7-10. This passage is silent with regard to a counter as claimed. Further, Appellant does not find a teaching or suggestion in Shoroff of the claimed counter.

Appellant respectfully submits that the Examiner has erred in rejecting claim 1. The cited art simply does not teach or suggest a counter that is "indicative of a number of sets of adjacent bits that are set in words of the second data structure, wherein a second data structure bit that is set indicates that one or more clusters of objects associated with said bit are free for storage of data." Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this first grouping be reversed, and the claims set for issue.

B. Claims 10-13.

Appellant argues independent claim 10 as representative of this claim group. Claim 10 requires, among other limitations, "a usage counter indicative of a number of sets of adjacent bits that are set in words of the directory bitmap, a bit in the directory bitmap being set to indicate whether a cluster associated with said bit is free." The Examiner correctly concluded that Macon does not teach or suggest the claimed "usage counter," and, instead, turns to the combination of

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Burrows and Shoroff for that teaching. Appellant believes the Examiner's analysis is in error for several reasons.

As explained above, the Examiner argues that the size 253 field in Figure 4 of Burrows is akin to the claimed counter. Size field 253, however, is described as providing the size (measure in units of bytes) of the web page. See col. 8, lines 47-50. The size field 253 is not described as being a counter. Further, Burrows is completely devoid of any mention whatsoever of a counter as recited in claim 10.

The Examiner attempts to support his position that Burrows' size field is somehow a counter in stating that the "size field 253 is represented as a counter indicative (col. 8, lines 47-50, fig. 6)." Office Action page 3. Col. 8, lines 47-50 simply state that the size field 253 "can be expressed as the number of bytes of a page. The size information can help a user determine the amount of bandwidth needed to "download" the page, and the amount of memory needed to store the page." Figure 6 in Burrows does not show a counter. The text pertaining to Figure 6 has no mention whatsoever of a counter as claimed. See col. 10, lines 18-54. Thus, none of these passages, nor anywhere else in Burrows, teaches or even suggests the claimed counter.

The Examiner also refers to Shoroff's teaching of a bitmap record 52 in Figure 2 and in col. 5, lines 7-10. Office Action page 3. Shoroff explains that the bitmap record 52 has "a bit for each cluster on the volume, with each bit having a value representative of whether a cluster is allocated to a file or is free space." Col. 5, lines 7-10. This passage is silent with regard to a counter as claimed. Further, Appellant does not find a teaching or suggestion in Shoroff of the claimed counter.

The cited art simply does not teach or suggest "a usage counter indicative of a number of sets of adjacent bits that are set in words of the directory bitmap, a bit in the directory bitmap being set to indicate whether a cluster associated with said bit is free." Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

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C. Claims 15-17, 19, and 20.

Appellant argues independent claim 15 as representative of this claim group. Claim 15 is a method claim that requires, among other limitations, "consulting at least one usage counter to manage the objects, the at least one usage counter indicates how many sets of adjacent bits are set in words of the second data structure, each bit in the second data structure being set to indicate whether a cluster of objects associated with said bit is free." The Examiner correctly concluded that Macon does not teach or suggest the claimed "usage counter," and, instead, turns to the combination of Burrows and Shoroff for that teaching. Appellant believes the Examiner's analysis is in error for several reasons.

As explained above, the Examiner argues that the size 253 field in Figure 4 of Burrows is akin to the claimed counter. Size field 253, however, is described as providing the size (measure in units of bytes) of the web page. See col. 8, lines 47-50. The size field 253 is not described as being a counter. Further, Burrows is completely devoid of any mention whatsoever of a counter as recited in claim 10.

The Examiner attempts to support his position that Burrows' size field is somehow a counter in stating that the "size field 253 is represented as a counter indicative (col. 8, lines 47-50, fig. 6)." Office Action page 3. Col. 8, lines 47-50 simply state that the size field 253 "can be expressed as the number of bytes of a page. The size information can help a user determine the amount of bandwidth needed to "download" the page, and the amount of memory needed to store the page." Figure 6 in Burrows does not show a counter. The text pertaining to Figure 6 has no mention whatsoever of a counter as claimed. See col. 10, lines 18-54. Thus, none of these passages, nor anywhere else in Burrows, teaches or even suggests the claimed counter.

The Examiner also refers to Shoroff's teaching of a bitmap record 52 in Figure 2 and in col. 5, lines 7-10. Office Action page 3. Shoroff explains that the bitmap record 52 has "a bit for each cluster on the volume, with each bit having a value representative of whether a cluster is allocated to a file or is free space."

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Col. 5, lines 7-10. This passage is silent with regard to a counter as claimed. Further, Appellant does not find a teaching or suggestion in Shoroff of the claimed counter.

The cited art simply does not teach or suggest "at least one usage counter to manage the objects, the at least one usage counter indicates how many sets of adjacent bits are set in words of the second data structure, each bit in the second data structure being set to indicate whether a cluster of objects associated with said bit is free." Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

D. Claims 22-24, 26, and 27.

Appellant argues independent claim 22 as representative of this claim group. Claim 22 requires, among other limitations, "consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure to indicate that associated objects are free for storing data." The Examiner correctly concluded that Macon does not teach or suggest the claimed "usage counter," and, instead, turns to the combination of Burrows and Shoroff for that teaching. Appellant believes the Examiner's analysis is in error for several reasons.

As explained above, the Examiner argues that the size 253 field in Figure 4 of Burrows is akin to the claimed counter. Size field 253, however, is described as providing the size (measure in units of bytes) of the web page. See col. 8, lines 47-50. The size field 253 is not described as being a counter. Further, Burrows is completely devoid of any mention whatsoever of a counter as recited in claim 10.

The Examiner attempts to support his position that Burrows' size field is somehow a counter in stating that the "size field 253 is represented as a counter indicative (col. 8, lines 47-50, fig. 6)." Office Action page 3. Col. 8, lines 47-50 simply state that the size field 253 "can be expressed as the number of bytes of a page. The size information can help a user determine the amount of bandwidth needed to "download" the page, and the amount of memory needed to store the page." Figure 6 in Burrows does not show a counter. The text pertaining to

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Figure 6 has no mention whatsoever of a counter as claimed. See col. 10, lines 18-54. Thus, none of these passages, nor anywhere else in Burrows, teaches or even suggests the claimed counter.

The Examiner also refers to Shoroff's teaching of a bitmap record 52 in Figure 2 and in col. 5, lines 7-10. Office Action page 3. Shoroff explains that the bitmap record 52 has "a bit for each cluster on the volume, with each bit having a value representative of whether a cluster is allocated to a file or is free space." Col. 5, lines 7-10. This passage is silent with regard to a counter as claimed. Further, Appellant does not find a teaching or suggestion in Shoroff of the claimed counter.

The cited art simply does not teach or suggest "at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure to indicate that associated objects are free for storing data." Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

E. Claims 29-31, 33, and 34.

Appellant argues independent claim 29 as representative of this claim group. Claim 29 requires, among other limitations, "consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure, a set bit in the second data structure indicating that an associated cluster of objects is free for storing data." The Examiner correctly concluded that Macon does not teach or suggest the claimed "usage counter," and, instead, turns to the combination of Burrows and Shoroff for that teaching. Appellant believes the Examiner's analysis is in error for several reasons.

As explained above, the Examiner argues that the size 253 field in Figure 4 of Burrows is akin to the claimed counter. Size field 253, however, is described as providing the size (measure in units of bytes) of the web page. See col. 8, lines 47-50. The size field 253 is not described as being a counter. Further, Burrows is completely devoid of any mention whatsoever of a counter as recited in claim 10.

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The Examiner attempts to support his position that Burrows' size field is somehow a counter in stating that the "size field 253 is represented as a counter indicative (col. 8, lines 47-50, fig. 6)." Office Action page 3. Col. 8, lines 47-50 simply state that the size field 253 "can be expressed as the number of bytes of a page. The size information can help a user determine the amount of bandwidth needed to "download" the page, and the amount of memory needed to store the page." Figure 6 in Burrows does not show a counter. The text pertaining to Figure 6 has no mention whatsoever of a counter as claimed. See col. 10, lines 18-54. Thus, none of these passages, nor anywhere else in Burrows, teaches or even suggests the claimed counter.

The Examiner also refers to Shoroff's teaching of a bitmap record 52 in Figure 2 and in col. 5, lines 7-10. Office Action page 3. Shoroff explains that the bitmap record 52 has "a bit for each cluster on the volume, with each bit having a value representative of whether a cluster is allocated to a file or is free space." Col. 5, lines 7-10. This passage is silent with regard to a counter as claimed. Further, Appellant does not find a teaching or suggestion in Shoroff of the claimed counter.

The cited art simply does not teach or suggest "at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure, a set bit in the second data structure indicating that an associated cluster of objects is free for storing data." Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

F. Claims 36-38, 40, and 41.

Appellant argues independent claim 36 as representative of this claim group. Claim 36 is a method claim that requires, among other limitations, "consulting at least one usage counter that indicates how many sets of adjacent binary bits are set in words of the directory structure thereby indicating which clusters of objects are free for storing data." The Examiner correctly concluded that Macon does not teach or suggest the claimed "usage counter," and, instead,

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turns to the combination of Burrows and Shoroff for that teaching. Appellant believes the Examiner's analysis is in error for several reasons.

As explained above, the Examiner argues that the size 253 field in Figure 4 of Burrows is akin to the claimed counter. Size field 253, however, is described as providing the size (measure in units of bytes) of the web page. See col. 8, lines 47-50. The size field 253 is not described as being a counter. Further, Burrows is completely devoid of any mention whatsoever of a counter as recited in claim 10.

The Examiner attempts to support his position that Burrows' size field is somehow a counter in stating that the "size field 253 is represented as a counter indicative (col. 8, lines 47-50, fig. 6)." Office Action page 3. Col. 8, lines 47-50 simply state that the size field 253 "can be expressed as the number of bytes of a page. The size information can help a user determine the amount of bandwidth needed to "download" the page, and the amount of memory needed to store the page." Figure 6 in Burrows does not show a counter. The text pertaining to Figure 6 has no mention whatsoever of a counter as claimed. See col. 10, lines 18-54. Thus, none of these passages, nor anywhere else in Burrows, teaches or even suggests the claimed counter.

The Examiner also refers to Shoroff's teaching of a bitmap record 52 in Figure 2 and in col. 5, lines 7-10. Office Action page 3. Shoroff explains that the bitmap record 52 has "a bit for each cluster on the volume, with each bit having a value representative of whether a cluster is allocated to a file or is free space." Col. 5, lines 7-10. This passage is silent with regard to a counter as claimed. Further, Appellant does not find a teaching or suggestion in Shoroff of the claimed counter.

The cited art simply does not teach or suggest "at least one usage counter that indicates how many sets of adjacent binary bits are set in words of the directory structure thereby indicating which clusters of objects are free for storing data." Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

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G. Claims 43-45, 47, and 48.

Appellant argues independent claim 43 as representative of this claim group. Claim 43 requires, among other limitations, "consulting at least one usage counter that indicates how many adjacent clusters are available storing data." The Examiner correctly concluded that Macon does not teach or suggest the claimed "usage counter," and, instead, turns to the combination of Millett and Orcutt that teaching. The Examiner's analysis is in error for several reasons.

With regard to Millett, the Examiner identifies column 9, lines 40-55 and Fig. 3 as allegedly being relevant to the patentability analysis. The cited passage of Millett is a portion of pseucode related to a step of allocating memory during a process of indexing a file. More specifically, the Examiner notes that Millett teaches that a "structure includes controls, this word's reference count in the index, and number of bytes for index piece." Office Action page 34. Appellant is at a loss to understand the relevance of this teaching from Millett to the claimed usage counter that " indicates how many adjacent clusters are available storing data." The cited passage of Millett does refer to a "reference count," but Millett's count has nothing at all to with the claimed usage counter.

With regard to Orcutt, the Examiner identified col. 20, lines 55-60, as allegedly being relevant. That passage refers to "a count indicating the number of free clusters available." Orcutt's "count" is distinct from the claimed "usage counter" which "indicates how many adjacent clusters are available storing data."

Moreover, neither Millet nor Orcutt, nor any other art of record, teaches or even suggests the "usage counter" as recited in claim 43. Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this second grouping be reversed, and the grouping set for issue.

H. Claims 50-52, 54, and 55.

Appellant argues independent claim 50 as representative of this claim group. Claim 50 requires, among other limitations, "consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the directory data structure thereby indicating which clusters are free for storing data." The Examiner correctly concluded that Macon does not teach or suggest the

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claimed "usage counter," and, instead, turns to the combination of Burrows and Shoroff for that teaching. Appellant believes the Examiner's analysis is in error for several reasons.

As explained above, the Examiner argues that the size 253 field in Figure 4 of Burrows is akin to the claimed counter. Size field 253, however, is described as providing the size (measure in units of bytes) of the web page. See col. 8, lines 47-50. The size field 253 is not described as being a counter. Further, Burrows is completely devoid of any mention whatsoever of a counter as recited in claim 10.

The Examiner attempts to support his position that Burrows' size field is somehow a counter in stating that the "size field 253 is represented as a counter indicative (col. 8, lines 47-50, fig. 6)." Office Action page 3. Col. 8, lines 47-50 simply state that the size field 253 "can be expressed as the number of bytes of a page. The size information can help a user determine the amount of bandwidth needed to "download" the page, and the amount of memory needed to store the page." Figure 6 in Burrows does not show a counter. The text pertaining to Figure 6 has no mention whatsoever of a counter as claimed. See col. 10, lines 18-54. Thus, none of these passages, nor anywhere else in Burrows, teaches or even suggests the claimed counter.

The Examiner also refers to Shoroff's teaching of a bitmap record 52 in Figure 2 and in col. 5, lines 7-10. Office Action page 3. Shoroff explains that the bitmap record 52 has "a bit for each cluster on the volume, with each bit having a value representative of whether a cluster is allocated to a file or is free space." Col. 5, lines 7-10. This passage is silent with regard to a counter as claimed. Further, Appellant does not find a teaching or suggestion in Shoroff of the claimed counter.

The cited art simply does not teach or suggest "at least one usage counter that indicates how many sets of adjacent bits are set in words of the directory data structure thereby indicating which clusters are free for storing data." Based on the foregoing, Appellant respectfully submits that the rejections of the claims in this grouping be reversed, and the claims set for issue.

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VIII. CONCLUSION

For the reasons stated above, Appellant respectfully submits that the Examiner erred in rejecting all pending claims. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,

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IX. CLAIMS APPENDIX

1. (Previously presented) An apparatus for use in managing objects, the apparatus comprising:

a plurality of clusters, each cluster comprising a plurality of objects;

a first data structure indicating a state of the objects;

a second data structure indicating the state of the clusters; and

a counter indicative of a number of sets of adjacent bits that are set in words of the second data structure, wherein a second data structure bit that is set indicates that one or more clusters of objects associated with said bit are free for storage of data; and

wherein each word comprises a plurality of bits.

2. (Previously presented) The apparatus of claim 1, further comprising a plurality of containers populated by the clusters and control data associated with the containers.

3. (Previously presented) The apparatus of claim 1, further comprising a plurality of containers populated by the clusters and wherein at least some containers comprise files.

4. (Original) The apparatus of claim 3, wherein the file is a page file or a swap file.

5. (Original) The apparatus of claim 3, wherein the objects comprise slots in the file.

6. (Original) The apparatus of claim 1, wherein each cluster comprises 16 objects.

7. (Original) The apparatus of claim 1, wherein at least one of the first and second data structures comprises a bitmap.

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8. (Previously presented) The apparatus of claim 1, further comprising at least one other counter selected from the group consisting of:

a counter of how many free pages a cluster has; and

a counter of how many free clusters are in the container.

9. (Original) The apparatus of claim 8, further comprising at least one data structure containing information indicating that:

the second data structure contains clusters of at least four adjacent free bits;

the second data structure is not empty, but contains no clusters of four adjacent free bits;

the second data structure is empty, but allocation bitmap still shows free pages; or

the file is full or should not be used.

10. (Previously presented) An apparatus, comprising:

a plurality of files;

a plurality of clusters populating each file, each cluster comprising a plurality of slots;

an allocation bitmap indicating a state of the slots;

a directory bitmap indicating the state of the clusters and

a usage counter indicative of a number of sets of adjacent bits that are set in words of the directory bitmap, a bit in the directory bitmap being set to indicate whether a cluster associated with said bit is free;

wherein each word comprises a plurality of bits.

11. (Original) The apparatus of claim 10, wherein each file is a page file or a swap file.

12. (Original) The apparatus of claim 10, wherein each cluster comprises 16 slots.

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13. (Previously presented) The apparatus of claim 10, further comprising at least one other usage counter selected from the group consisting of:

a counter of how many free slots a cluster has; and

a counter of how many free clusters are in the file.

14. (Original) The apparatus of claim 13, further comprising at least one data structure containing information indicating that:

the directory bitmap contains clusters of at least four adjacent free bits;

the directory bitmap is not empty, but contains no clusters of four adjacent free bits;

the directory bitmap is empty, but the allocation bitmap still shows free pages; or

the file is full or should not be used.

15. (Previously presented) A method for managing a plurality of clustered objects, the method comprising:

tracking a state for each of a plurality of objects in a first data structure;

tracking states of clusters of objects in a second data structure;

consulting at least one of the first and second data structures to manage the objects and

consulting at least one usage counter to manage the objects, the at least one usage counter indicates how many sets of adjacent bits are set in words of the second data structure, each bit in the second data structure being set to indicate whether a cluster of objects associated with said bit is free;

wherein each word comprises a plurality of bits associated with an implementation specific wordlength.

16. (Original) The method of claim 15, further comprising:

constructing the first data structure; and

constructing the second data structure.

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17. (Previously presented) The method of claim 15, wherein tracking the state for each of the plurality of objects in the first data structure or tracking the states of clusters of objects in the second data structure includes tracking in a bitmap.

18. (Canceled).

19. (Previously presented) The method of claim 15, wherein consulting the at least one usage counter includes consulting at least one other usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clusters are in the file.

20. (Original) The method of claim 15, further comprising consulting at least one list containing information extracted from usage counters to manage the objects.

21. (Original) The method of claim 20, wherein consulting the at least one list includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the second data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the second data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing Information indicating whether the second data structure is empty, but allocation bitmap still shows free objects; or

a fourth list containing information indicating that the containers in this list are full or should not be used.

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22. (Previously presented) A program storage medium encoded with instructions that, when executed by a computing device, perform a method for managing a plurality of clustered objects in a container, the method comprising:

tracking a state for each of a plurality of objects populating a container in a first data structure;

tracking states of clusters of objects in a second data structure;

consulting at least one of the first and second data structures to manage the objects; and

consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure to indicate that associated objects are free for storing data,

wherein each word comprises a plurality of electronic bits.

23. (Original) The program storage medium of claim 22, wherein the encoded method further comprises:

constructing the first data structure; and

constructing the second data structure.

24. (Previously presented) The program storage medium of claim 22, wherein tracking the state for each of the plurality of objects populating the container in the first data structure or tracking the states of clusters of objects in the second data structure in the encoded method includes tracking in a bitmap.

25. (Canceled).

26. (Previously presented) The program storage medium of claim 22, wherein consulting the at least one usage counter in the encoded method includes consulting another usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clusters are in the file.

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27. (Original) The program storage medium of claim 22, wherein the encoded method further comprises consulting at least one list containing information extracted from usage counters to manage the objects.

28. (Original) The program storage medium of claim 27, wherein consulting the at least one list in the encoded method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the second data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the second data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the second data structure is empty, but the allocation bitmap still shows free objects; or

a fourth list containing information indicating that the containers in this list are full or should not be used.

29. (Previously presented) A computing device programmed to perform a method for managing a plurality of clustered objects in a container, the method comprising:

tracking a state for each of a plurality of objects populating a container in a first data structure;

tracking states of clusters of objects in a second data structure;

consulting at least one of the first and second data structures to manage the objects; and

consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the second data structure, a set bit in the second data structure indicating that an associated cluster of objects is free for storing data,

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wherein the words each have a wordlength based on a maximum number of bits handled by a processor that executes an operating system.

30. (Original) The programmed computing device of claim 29, wherein the programmed method further comprises:

constructing the first data structure; and

constructing the second data structure.

31. (Previously presented) The programmed computing device of claim 29, wherein tracking the state for each of the plurality of objects populating the container in the first data structure or tracking the states of clusters of objects in the second data structure in the programmed method includes tracking in a bitmap.

32. (Canceled).

33. (Previously presented) The programmed computing device of claim 29, wherein consulting the at least one usage counter in the programmed method includes consulting another usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clusters are in the file.

34. (Original) The programmed computing device of claim 29, wherein the programmed method further comprises consulting at least one list containing information extracted from usage counters to manage the objects.

35. (Original) The programmed computing device of claim 34, wherein consulting the at least one list in the programmed method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the second data structure contains clusters of at least four adjacent free bits;

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a second list containing information indicating whether the second data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the second data structure is empty, but allocation bitmap still shows free objects; or

a fourth list containing information indicating that the containers in this list are full or should not be used.

36. (Previously presented) A method for managing a plurality of clustered slots in a file, the method comprising:

tracking a state for each of a plurality of slots populating a file in a allocation data structure;

tracking states of clusters of objects in a directory data structure;

consulting at least one of the allocation and directory data structures to manage the slots; and

consulting at least one usage counter that indicates how many sets of adjacent binary bits are set in words of the directory structure thereby indicating which clusters of objects are free for storing data.

37. (Original) The method of claim 36, further comprising:

constructing the allocation data structure; and

constructing the directory data structure.

38. (Previously presented) The method of claim 36, wherein tracking the state for each of the plurality of slots populating the file in the allocation data structure or tracking the states of cluster of objects in the directory data structure includes tracking in a bitmap.

39. (Canceled).

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40. (Previously presented) The method of claim 36, wherein consulting the at least one usage counter includes consulting another usage counter selected from the group consisting of:

a counter of how many free pages a file has; and

a counter of how many free clusters are in the file.

41. (Original) The method of claim 36, further comprising consulting at least one list containing information extracted from usage counters to manage the slots.

42. (Original) The method of claim 41, wherein consulting the at least one list includes consulting a list selected from the group consisting of:

a first list containing information indicating that the directory data structure for files in this list contains clusters of at least four adjacent free bits;

a second list containing information indicating that the directory data structure for files in this list is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating that the directory data structure for files in this list is empty, but allocation bitmap still shows free slots; or

a fourth list containing information indicating that files in this list are full or should not be used.

43. (Previously presented) A program storage medium encoded with instructions that, when executed by a computing device, perform a method for managing a plurality of clustered slots in a file, the method comprising:

tracking a state for each of a plurality of slots populating a file in a allocation data structure;

tracking states of clusters of objects in a directory data structure;

consulting at least one of the allocation and directory data structures to manage the slots; and

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consulting at least one usage counter that indicates how many adjacent clusters are available storing data,

wherein each word comprises a plurality of bits.

44. (Original) The program storage medium of claim 43, wherein the encoded method further comprises:

constructing the allocation data structure; and

constructing the directory data structure.

45. (Previously presented) The program storage medium of claim 43, wherein tracking the state for each of the plurality of slots populating the file in the allocation data structure or tracking the states of clusters of objects in the directory data structure in the encoded method includes tracking in a bitmap.

46. (Canceled).

47. (Previously presented) The program storage medium of claim 43, wherein consulting the at least one usage counter in the encoded method includes consulting another usage counter selected from the group consisting of:

a counter of how many free slots a file has; and

a counter of how many free clusters are in the file.

48. (Original) The program storage medium of claim 43, wherein the encoded method further comprises consulting at least one list containing information extracted from usage counters to manage the slots.

49. (Original) The program storage medium of claim 48, wherein consulting the at least one in the encoded method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the directory data structure contains clusters of at least four adjacent free bits;

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a second list containing information indicating whether the directory data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the directory data structure is empty, but allocation bitmap still shows free slots; or

a fourth list containing information indicating whether the file is full or should not be used.

50. (Previously presented) A computing device programmed to perform a method for managing a plurality of clustered slots in a file, the method comprising:

tracking a state for each of a plurality of slots populating a file in a allocation data structure;

tracking states of clusters of objects in a directory data structure;

consulting at least one of the first and directory data structures to manage the slots and

consulting at least one usage counter that indicates how many sets of adjacent bits are set in words of the directory data structure thereby indicating which clusters are free for storing data,

wherein each word comprises a plurality of bits.

51. (Original) The programmed computing device of claim 50, wherein the programmed method further comprises:

constructing the allocation data structure; and

constructing the directory data structure.

52. (Previously presented) The programmed computing device of claim 50, wherein tracking the state for each of the plurality of slots populating the file in the allocation data structure or tracking the states of clusters of objects in the directory data structure in the programmed method includes tracking in a bitmap.

53. (Canceled).

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54. (Previously presented) The programmed computing device of claim 50, wherein consulting the at least one usage counter in the programmed method includes consulting another usage counter selected from the group consisting of:

a counter of how many free slots a file has; and

a counter of how many free clusters are in the file.

55. (Original) The programmed computing device of claim 50, wherein the programmed method further comprises consulting at least one list containing information extracted from usage counters to manage the slots.

56. (Original) The programmed computing device of claim 55, wherein consulting the at least one list in the programmed method includes consulting a list selected from the group consisting of:

a first list containing information indicating whether the directory data structure contains clusters of at least four adjacent free bits;

a second list containing information indicating whether the directory data structure is not empty, but contains no clusters of four adjacent free bits;

a third list containing information indicating whether the directory data structure is empty, but allocation bitmap still shows free slots; or

a fourth list containing information indicating whether the file is full or should not be used.

57. (Previously presented) The apparatus of claim 1 wherein the number of sets of adjacent bits is selected from the group consisting of 2, 4, 8, 16, 32, and 64.

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X. EVIDENCE APPENDIX

Not applicable.

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XI. RELATED PROCEEDINGS APPENDIX

Not applicable.

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